THOMAS & HUTTON

Hardeeville
SOUTH CAROLINA

Joint Planning Commission/City Council FEMA Floodplain Workshop

Kevin Smith, PE, CFM

March 6, 2018

Agenda

1. Floodplain Policy
2. Federal, State and Local Players/Roles
3. Definitions & Acronyms
4. FEMA Regulatory Instruments
5. Types of Studies
6. Special Flood Hazard Areas – Effective and Preliminary
7. Flood Damage Prevention Ordinance
8. Base Flood Elevation & Freeboard
9. Flood Insurance Discussion
10. Preliminary FEMA Map Effects on Hardeeville
11. Proactive Measures to Reduce Flood Insurance Effects
12. How does the City Proceed?
13. Questions and Discussion

National Flood Insurance Policy History

- 1965 Hurricane Betsy
- 1968 National Flood Insurance Act of 1968
- 1972 Hurricane/Tropical Storm Agnes
- 1973 Flood Disaster Act of 1973
- 1979 FEMA Created
- 1989 Hurricane Hugo
- NFIP Reform Bill of 1990

NATIONAL FLOOD INSURANCE PROGRAM

National Flood Insurance Policy History

- 1992 Hurricane Andre
- 1993 Upper Mississippi River Floods
- National Flood Insurance Reform Act of 1994
- 2001 – FEMA moved to DHS
- 2003 Hurricane Isabel
- Flood Insurance Reform Act of 2004

National Flood Insurance Policy History

- 2005 Hurricane Katrina & Wilma
- 2005 $19B Bailout
- Biggert-Waters Flood Insurance Reform Act of 2012
- 2012 Hurricane Sandy
- Homeowner Flood Insurance Affordability Act of 2014

Federal, State & Local Players/Roles

FEMA

Region IV

Flood Mitigation Program:
Protecting Lives, Protecting Property
Floodplain Management, Mapping, & Mitigation

Hardeeville
SOUTH CAROLINA

Definitions and Acronyms

- Community
  - Political entity that has the authority to adopt and enforce floodplain ordinances for the area under its jurisdiction.
- FIRM – Flood Insurance Rate Map
  - Official map of a community on which FEMA has delineated the 1% annual chance (base) floodplain or *Special Flood Hazard Area*, Base Flood Elevations (BFEs), and flood zones applicable to the community. The FIRM is used to determine flood insurance rates and requirements and where floodplain development regulations apply.
- FIS – Flood Insurance Study
  - The official report which usually accompanies the Flood Insurance Rate Map (FIRM), provided by FEMA that contains additional technical information on the flood hazards shown on the FIRM.
- Effective FIRM
  - Used a floodplain management regulatory tool, formally adopted, used to determine Flood Insurance Rates.

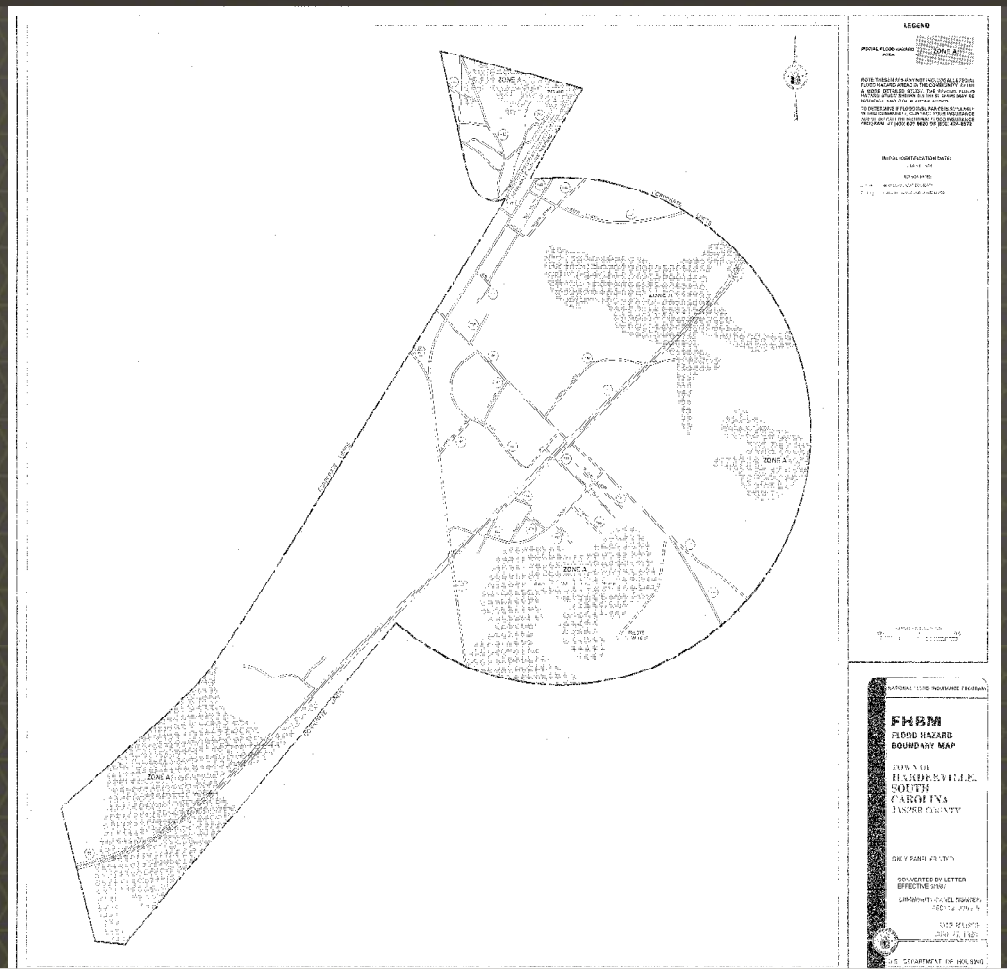
Definitions and Acronyms

- Preliminary FIRM
  - A FIRM that is not yet effective that reflects the initial results of a flood study performed by or for FEMA.
- 1% Annual Chance Flood
  - 1 in 100 chance that water levels will be equal or exceeded in any given year.
  - Floodplain Management Standard Nationwide.
- BFE – Base Flood Elevation
  - The elevations shown on FIRMs for Special Flood Hazard Areas (SFHA) that indicate water surface elevations resulting from the 1% Annual Chance Flood.
- DFE – Design Flood Elevation
  - The elevations of lowest floors for structures, typically the BFE + freeboard, or as dictated by localized 1% annual chance floods + freeboard.

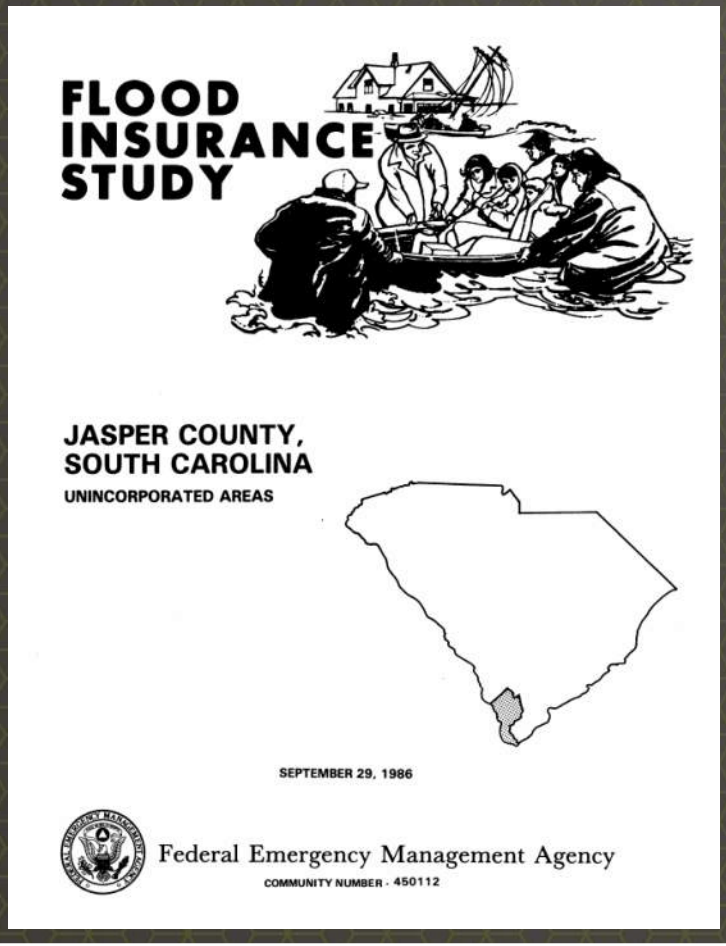
Definitions and Acronyms

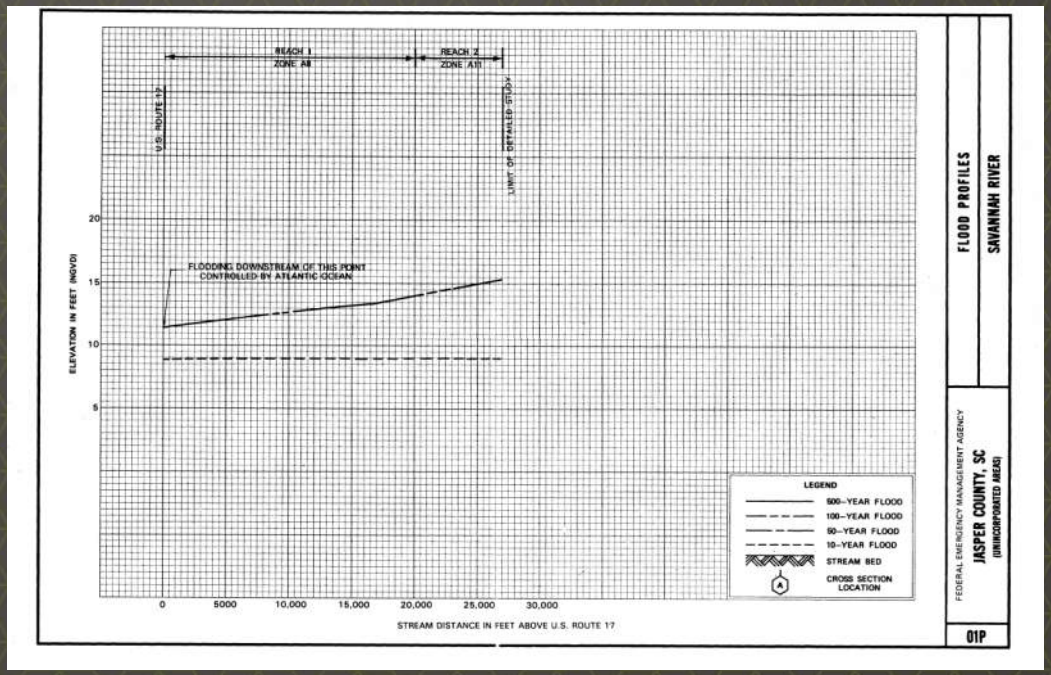
- SWEL – Stillwater Elevation
  - The projected elevation of floodwaters in the absence of waves resulting from wind or seismic effects. In coastal areas, stillwater elevations are determined when modeling coastal storm surge; the results of overland wave modeling are used in conjunction with the stillwater elevations to develop Base Flood Elevations.
- Pre-FIRM Building
  - A building for which construction or substantial improvement occurred on or before December 31, 1974 or before the effective date of an initial Flood Insurance Rate Map (FIRM).
- Post-FIRM Building
  - A building for which construction or substantial improvement occurred after December 31, 1974 or on or after the effective date of an initial Flood Insurance Rate Map (FIRM), whichever is later.
- LOMR – Letter of Map Revision
  - An official amendment to the currently effective FEMA map. It is issued by FEMA and changes flood zones, delineations and elevations.

FEMA Regulatory Instruments – 1986 - Today



FEMA Regulatory Instruments – Effective FIS





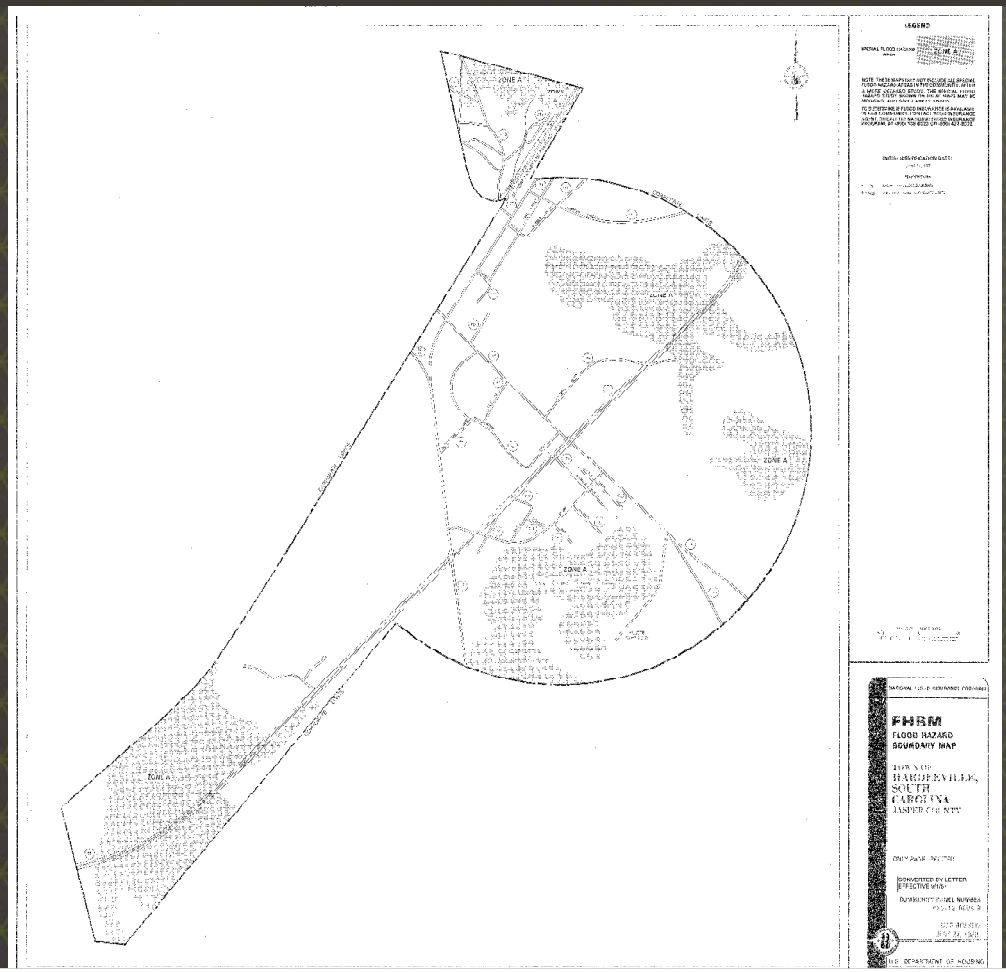
FEMA Regulatory Instruments – LOMRs Today

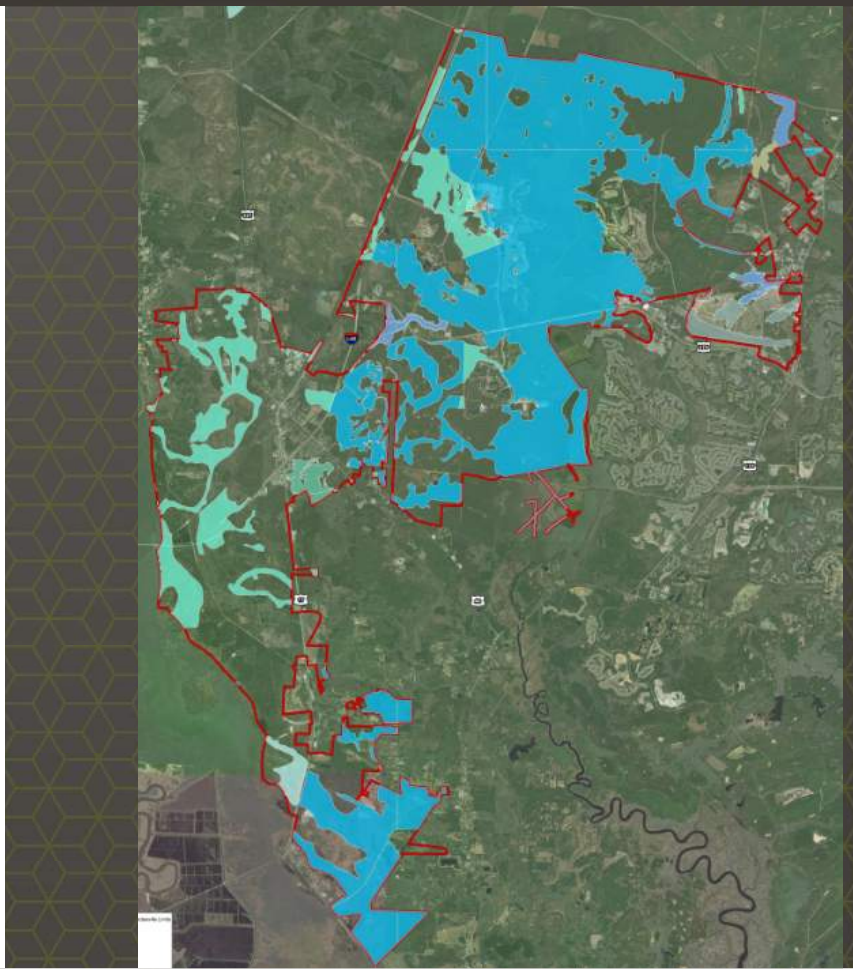
Showing 1 to 5 of 5 entries

Previous 1 Next

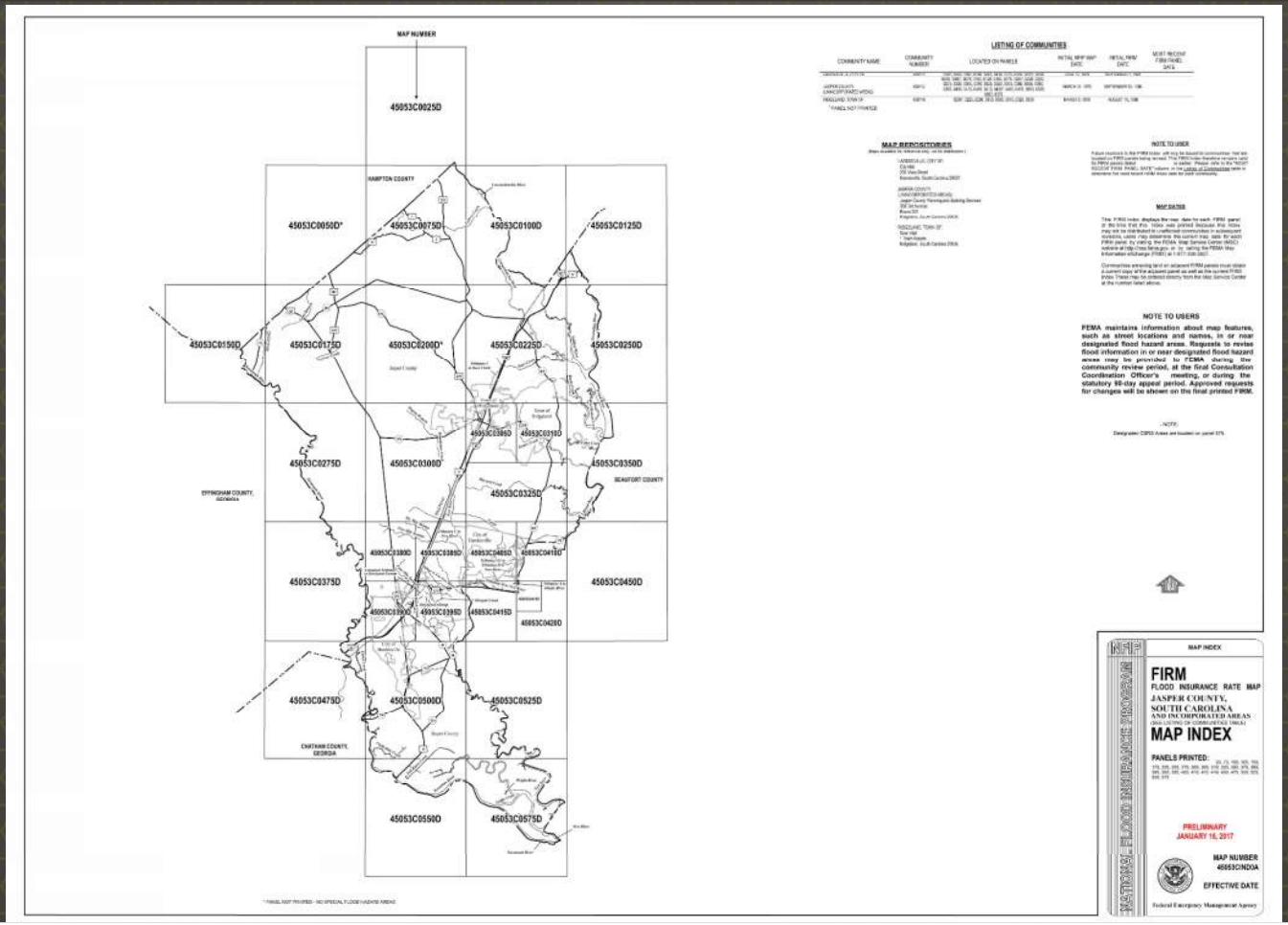
Product ID	Effective Date	Download
06-04-C661P-450113	07/26/2007	DL
08-04-3462P-450113	09/15/2008	DL
08-04-4422P-450113	03/29/2009	DL
09-04-5183P-450113	09/09/2010	DL
14-04-1941P-450113	09/18/2014	DL

FEMA Regulatory Instruments – With LOMRs





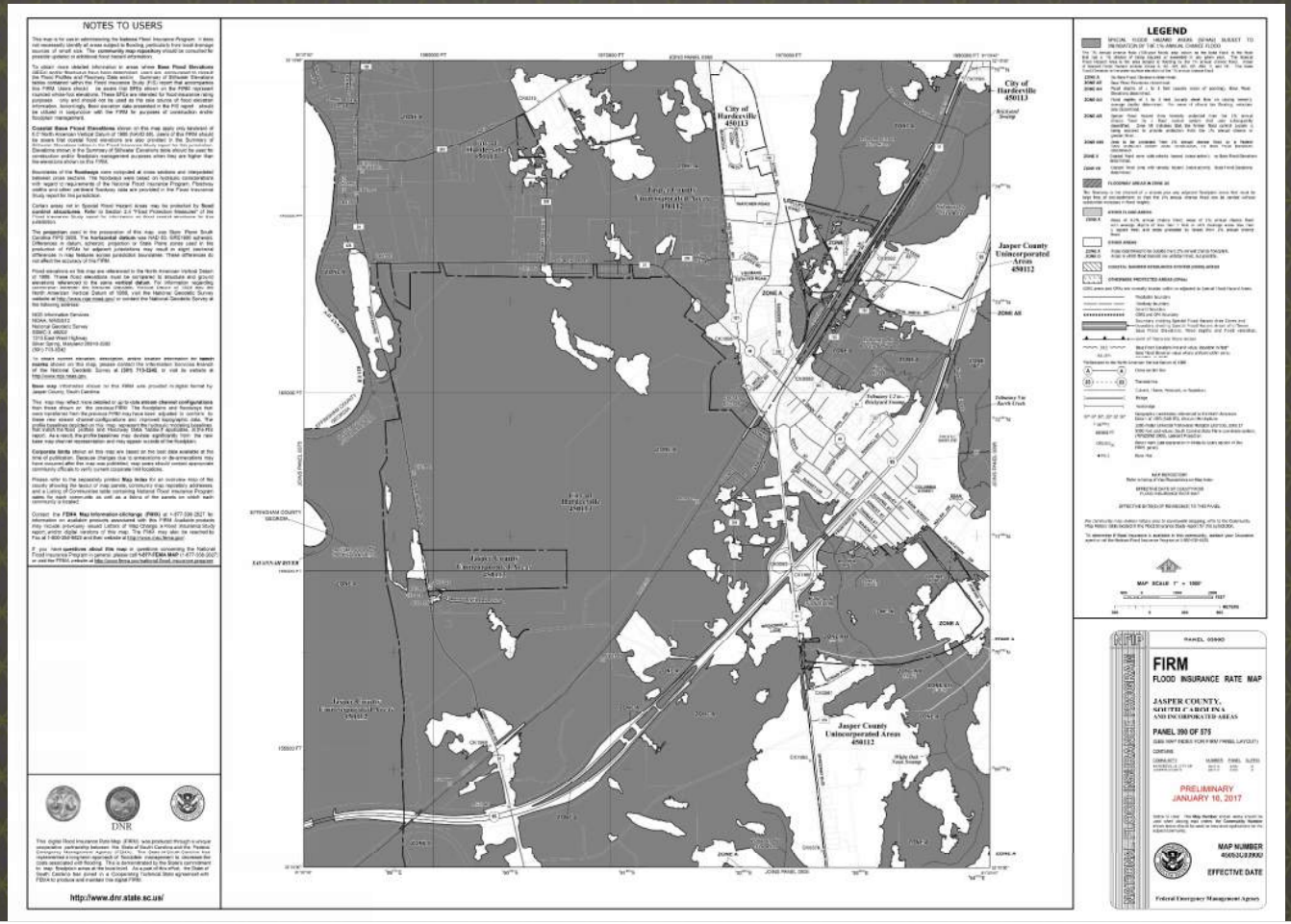
FEMA Regulatory Instruments – 2019 (Projected)



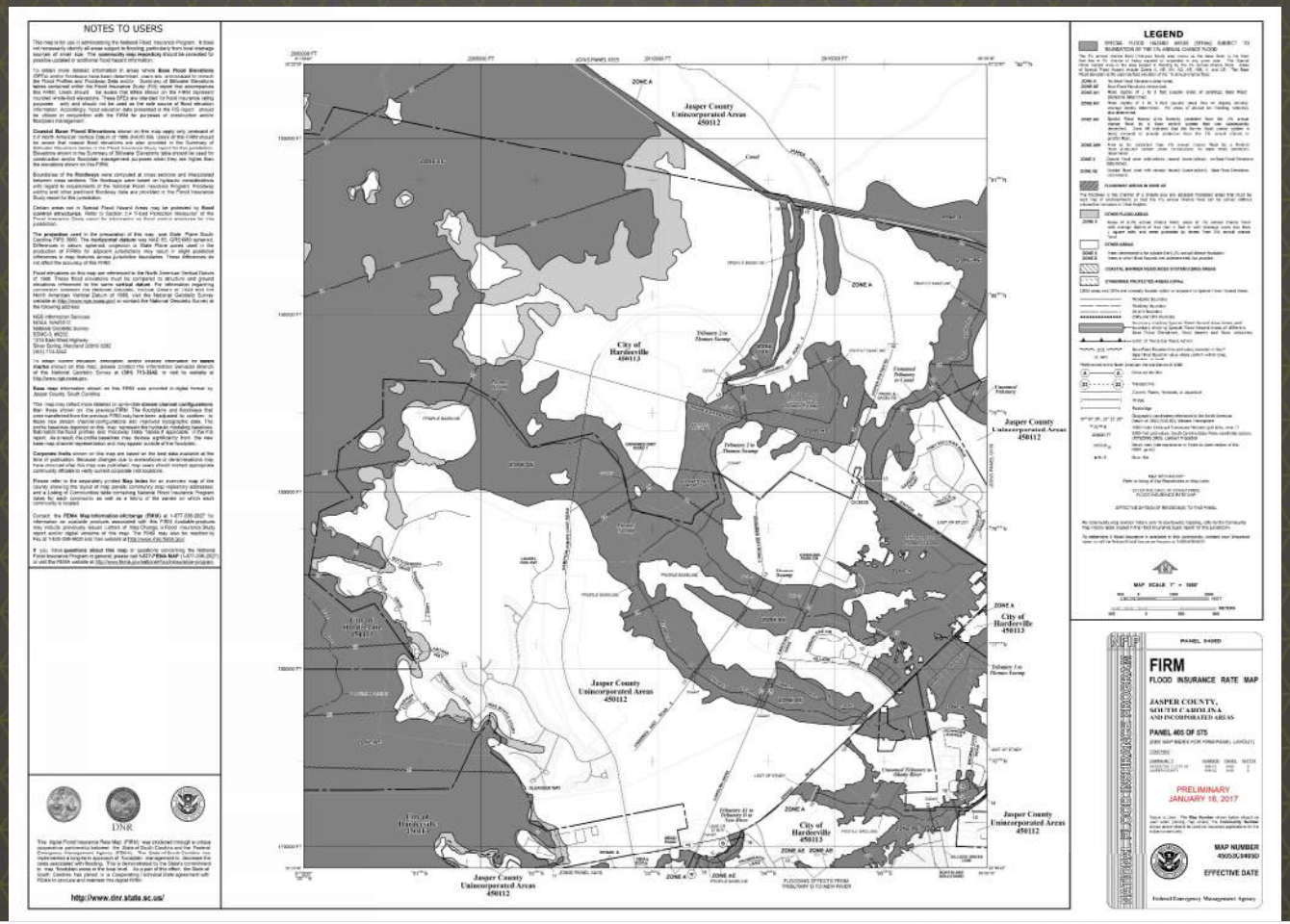
FEMA Regulatory Instruments – 2019 (Projected)

FEMA Regulatory Instruments – 2019 (Projected)

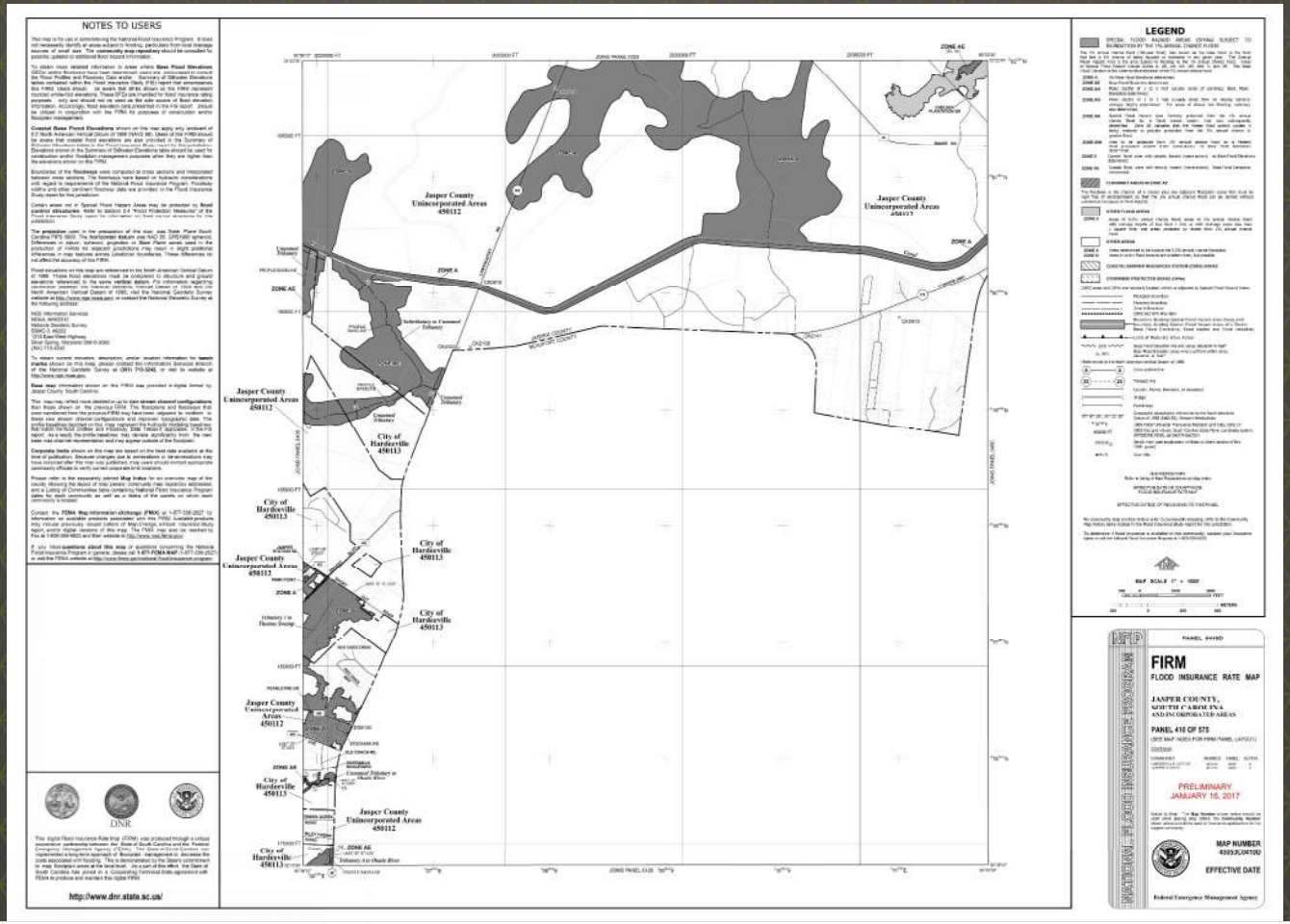
FEMA Regulatory Instruments – 2019 (Projected)



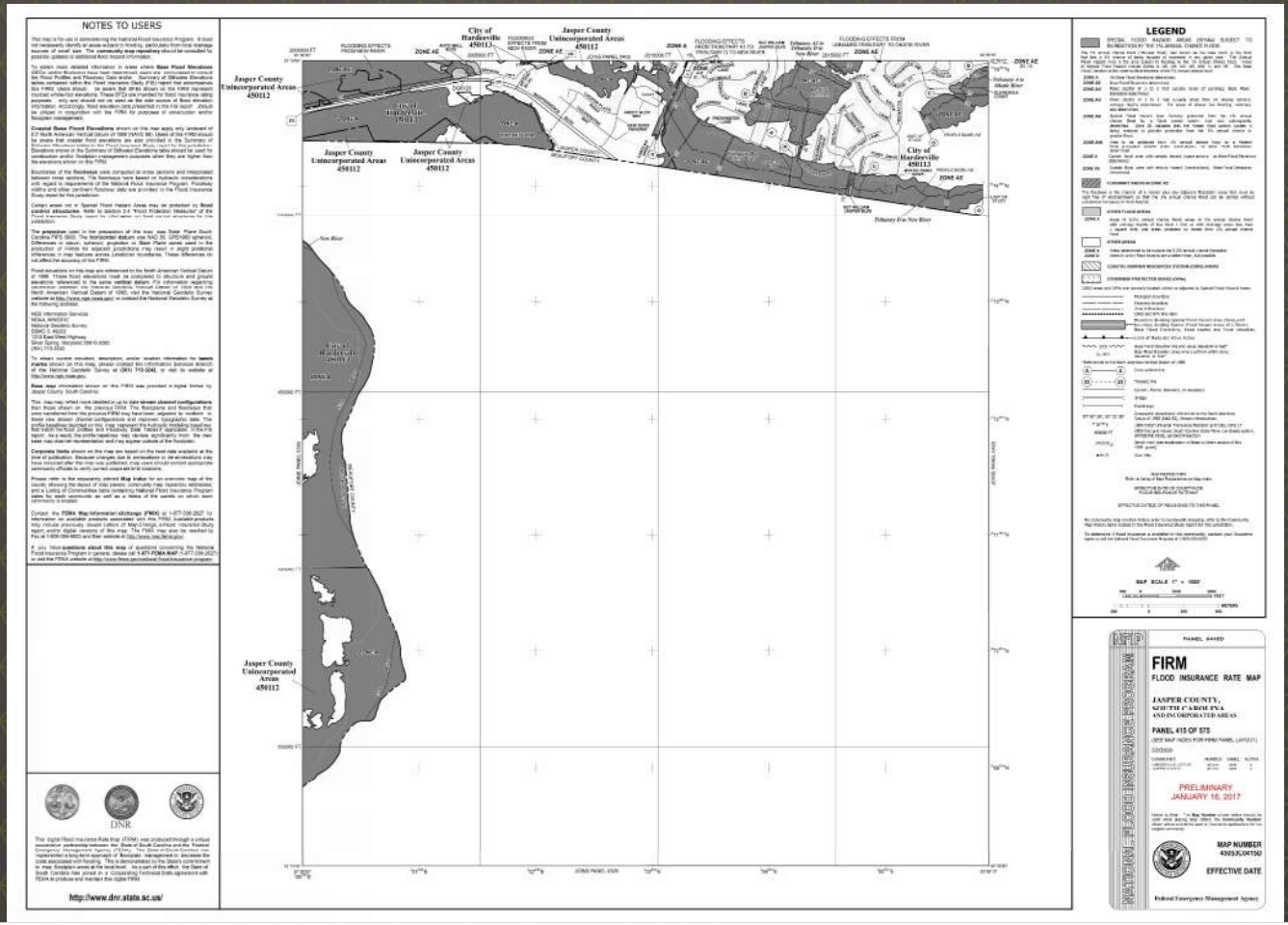
FEMA Regulatory Instruments – 2019 (Projected)



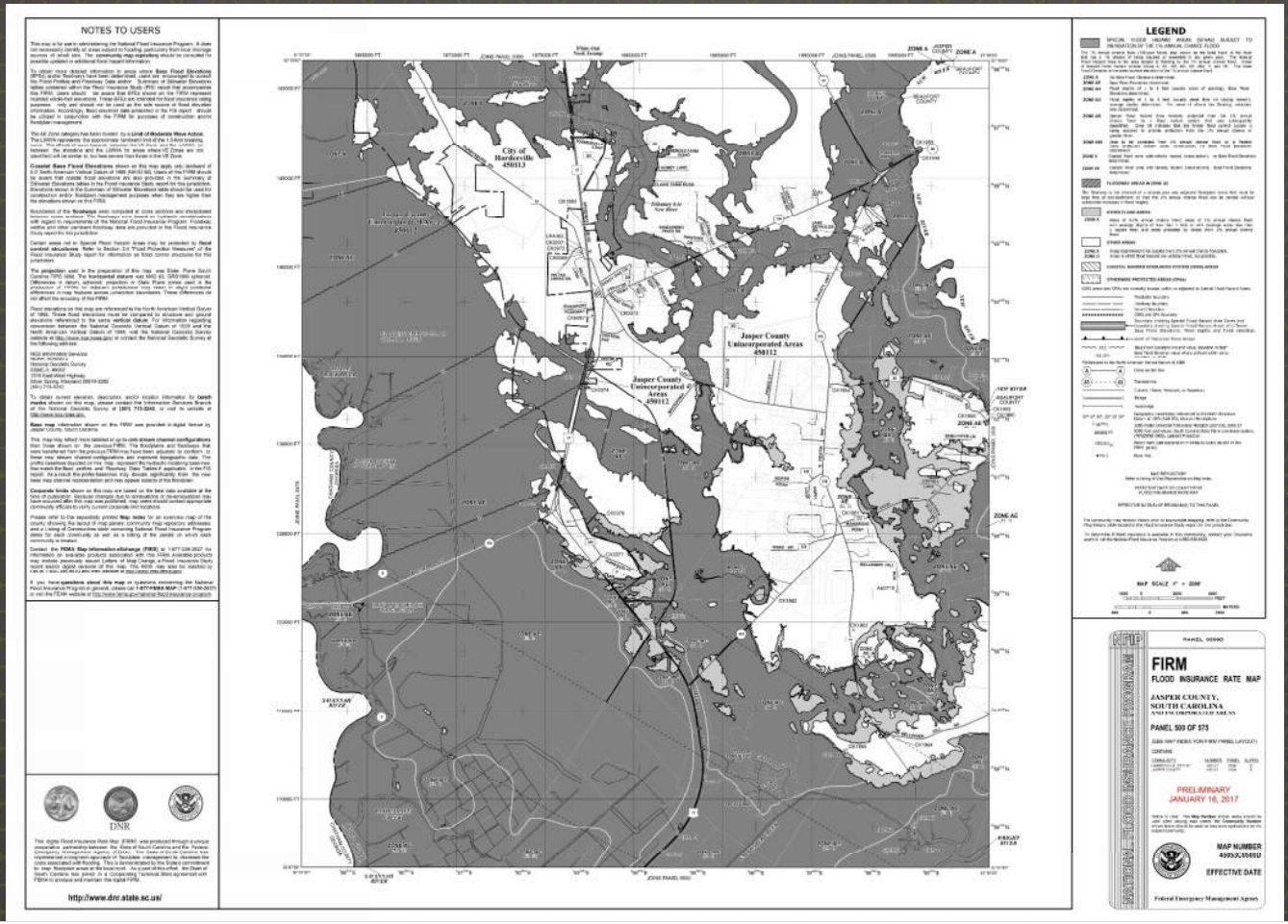
FEMA Regulatory Instruments – 2019 (Projected)



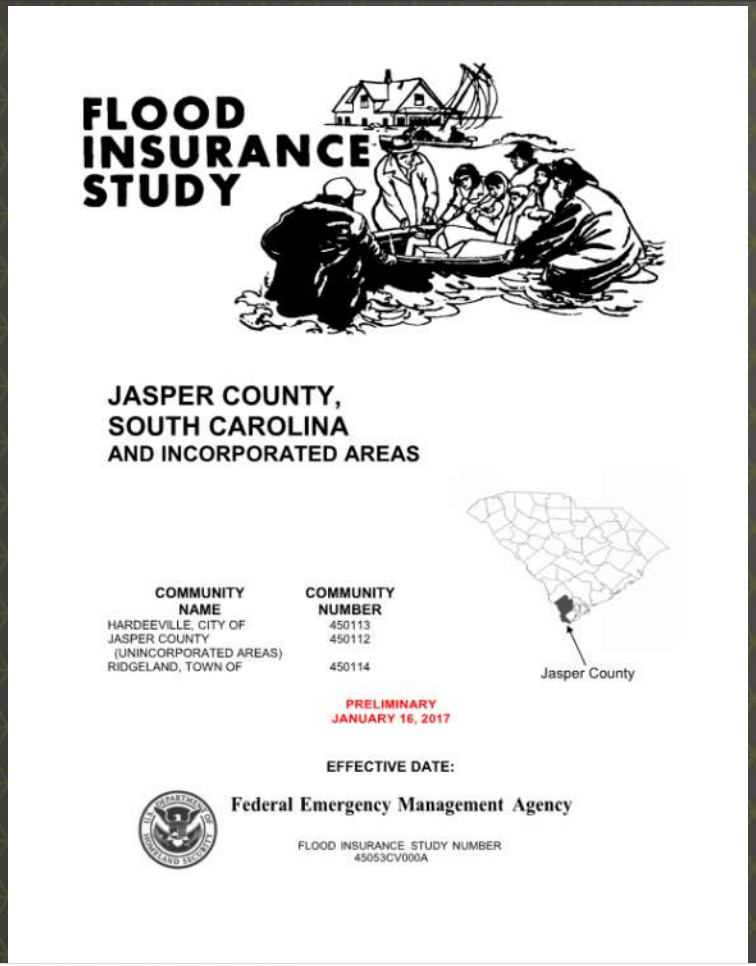
FEMA Regulatory Instruments – 2019 (Projected)



FEMA Regulatory Instruments – 2019 (Projected)



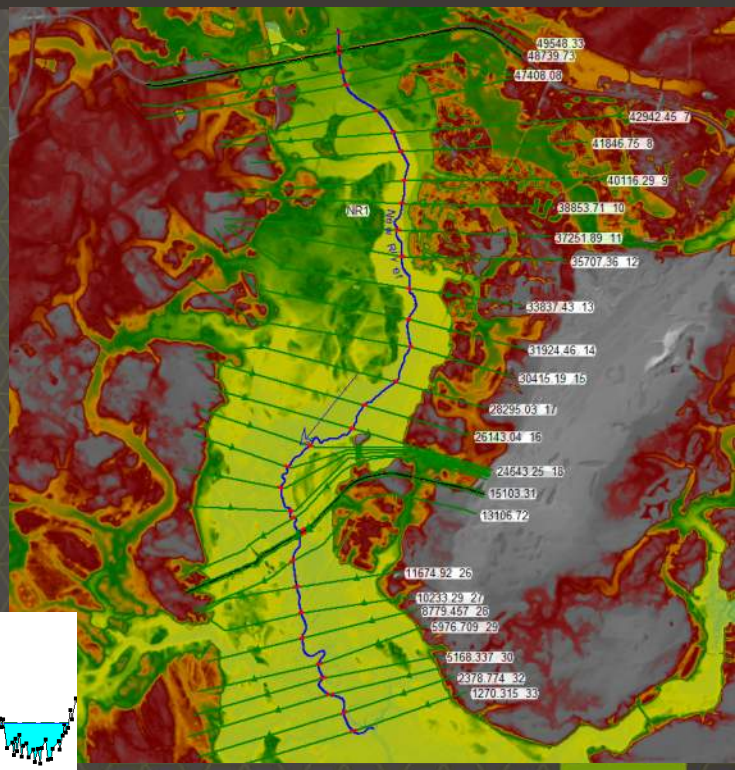
FEMA Regulatory Instruments – Preliminary

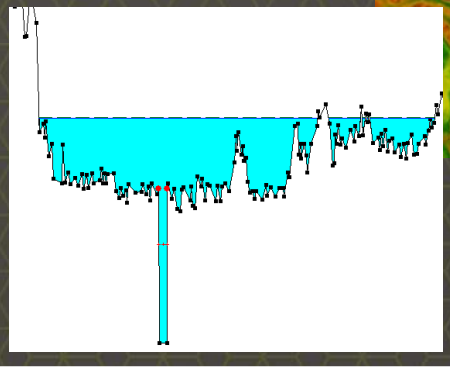


- 24 Mapped Reaches:
  - Baker Creek
  - Brickyard Swamp & Tributaries
  - Jackson Creek
  - Karrh Creek & Tributaries
  - New River & Tributaries
  - Savannah River
  - Thomas Swamp & Tributaries
  - Tributary to Okatie River

Types of Studies

- Riverine FEMA Studies
  - Approximate Studies – Zone A
    - Savannah River (Purrysburg Area)
    - Some Tributaries to Thomas Swamp
    - White Oak Nook Swamp
    - Some Tributaries to Brickyard Swamp
  - Detailed Studies – Zone AE
    - Savanannah River (Lower City Limit)
    - Baker Creek,
    - Brickyard Swamp
    - Jackson Swamp
    - Karrh Creek
    - New River
    - Thomas Swamp





Types of FEMA Flood Studies (Riverine)

How do the Approximate Method, Limited Detailed Study Method, and Detailed Study Method compare?

Approximate Methods	Limited Detailed Study Methods	Detailed Study Methods
Zone A	Zone A	Zone AE
No BFE Established, No Floodway Delineated	Estimated BFE Established, No Floodway Delineated	BFE Established and Floodway Delineated
No Field Surveys Done	No Field Surveys Done	Field Survey Done, Including Channel Bathymetric Profiles, Bridge & Culvert Geometry, and Floodplain Characteristics
USGS Topographic Quadrangles, Flood-prone Quadrangles, or Hydric Soils Maps Used, No Channel Cross-Sections Used	Digital Elevation Models (DEM) from Light Detection and Ranging (LIDAR) Data Used for Channel Cross-Sections	Field Survey Data, DEM, and LIDAR Data Used for Channel Cross-Sections
No Standard Hydrologic and Hydraulic Methods Used	Standard Hydrologic and Hydraulic Methods Used	Standard Hydrologic and Hydraulic Methods Used
No BFE Established	Estimated BFE Data in the *Flood Profiles for Streams Studied by Limited Detailed Methods Report;* the River Station as Distance from Downstream Beginning Point of Study Provided on DFIRM	BFE and Location of Cross-Sections on the DFIRM & FIS Report

Types of Studies

- FEMA Coastal Analysis
  - Statistical Analysis Based on historic coastal storms
  - Flooding Source – Atlantic Ocean (for Hardeeville)
  - Produce Coastal High Hazard Zones VE, AE and include additional wave action not seen in riverine systems
  - BFE = Stillwater elevation, ave setup, wave height and wave runup

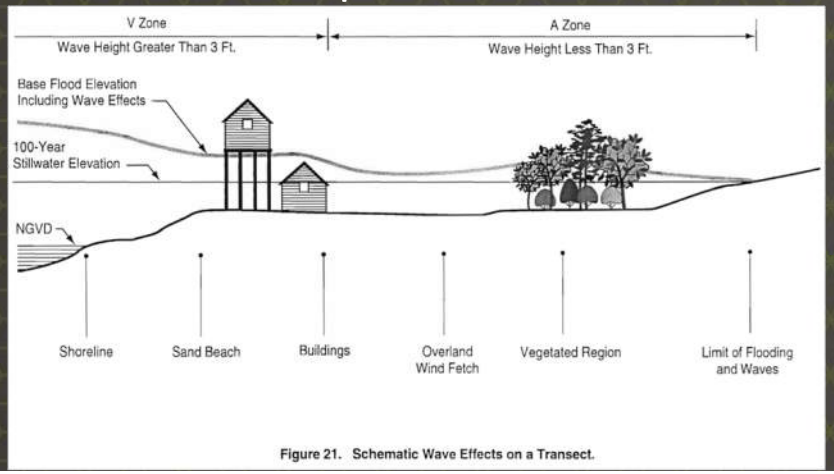
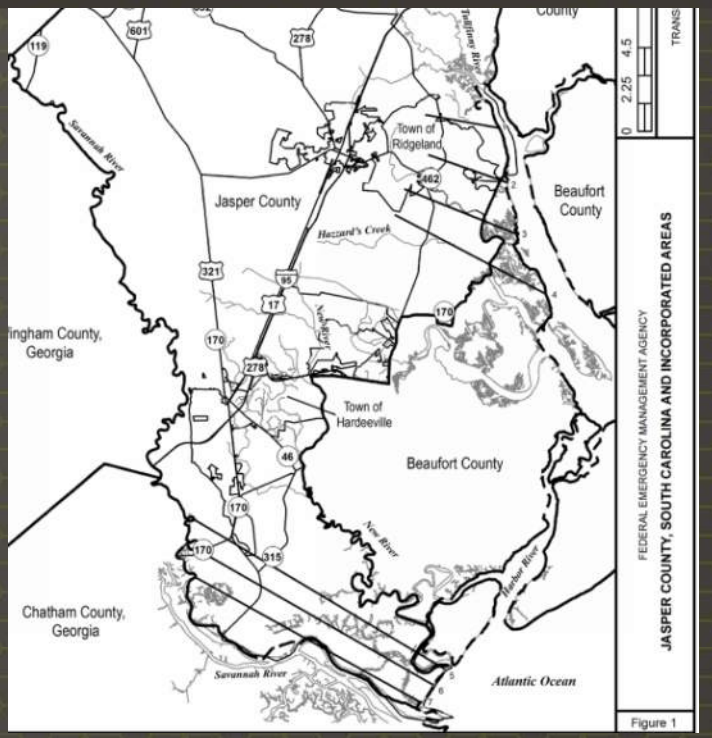


Figure 21. Schematic Wave Effects on a Transect.



Types of Studies

- Localized Stormwater Study (Development)
  - Non-FEMA Study
  - Smaller Scale Studies
  - More Detailed Hydrologic Parameters
  - Pipe, channel, swales, lagoons and outfall structures are modeled.
  - Evaluates localized effects of 1% annual chance event.
  - T&H - lowest floor is the higher of
    - FEMA BFE + freeboard; or
    - Localized 1% annual chance water surface elevation + freeboard

FEMA Special Flood Hazard Area (SFHA) Zones

- Zone A
  - Areas within a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. No BFEs established.
- Zone A1-A30
  - Old format – base floodplain where BFEs are provided.
- Zone AE
  - New format - The base floodplain where BFEs are provided.
- Zone AH
  - Area with a 1% annual chance of shallow flooding, usually in the form of a pond, average depth ranging from 1 to 3 feet.
- Zone AR
  - Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.

FEMA Special Flood Hazard Area (SFHA) Zones

- Zone A99
  - Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.
- Zone B
  - Old format – Areas of moderate flood hazard between the 1% annual chance and 0.2% annual chance floodplain.
- Zone C
  - Old Format – Areas of minimal flood hazard.
- Zone D
  - Old Format – Areas with possible but undetermined flood hazards.
- Zone V and VE – High Risk Coastal Areas
  - Coastal areas with 1% or greater chance of flooding and an additional hazard associated with storm waves.
- Zone X
  - Area of minimal flood hazard.

Flood Damage Prevention Ordinance (FDPO)

- Must reflect the minimum requirements of the NFIP.
- Required for a Community to allow the purchase of flood insurance to citizens.
- SCDNR
  - Technical advisors to Communities
  - Maintain a “model” FDPO
  - Is available for Community FDPO review
  - No permit authority or liability under the NFIP, unless the State adopts specific floodplain management regulations.

Flood Damage Prevention Ordinance (FDPO)

Article III. ADMINISTRATION

A. <u>Designation of Local Floodplain Administrator</u> -The _____(community official position title) is hereby appointed to administer and implement the provisions of this ordinance.

B. <u>Adoption of Letter of Map Revisions (LOMR)</u> – All LOMRs that are issued in the areas identified in Article I Section D of this ordinance are hereby adopted.

C. Development Permit and Certification Requirements

Flood Damage Prevention Ordinance (FDPO)

6. **Utilities** - Electrical, ventilation, plumbing, heating and air conditioning equipment (including ductwork), and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of the base flood plus _____ feet (freeboard).

Flood Damage Prevention Ordinance (FDPO)

B. Specific Standards

In all areas of special flood hazard (Zones A, AE, AH, AO, A1-30, V, and VE) where base flood elevation data has been provided, as set forth in Article I.D or outlined in the Duties and Responsibilities of the local floodplain administrator Article III.D., the following provisions are required:

1. **Residential Construction** - New construction and substantial improvement of any residential structure (including manufactured homes) shall have the lowest floor elevated no lower than _____feet above the base flood elevation. No basements are permitted. Should solid foundation perimeter walls be used to elevate a structure, flood openings sufficient to automatically equalize hydrostatic flood forces, shall be provided in accordance with the elevated buildings requirements in Article IV B.4.

Flood Damage Prevention Ordinance (FDPO)

2. **Non-Residential Construction**

a) New construction and substantial improvement of any commercial, industrial, or non-residential structure (including manufactured homes) shall have the lowest floor elevated no lower than _____feet above the level of the base flood elevation. Should solid foundation perimeter walls be used to elevate a structure, flood openings sufficient to automatically equalize hydrostatic flood forces, shall be provided in accordance with the elevated buildings requirements in Article IV B.4. No basements are permitted. Structures located in A-zones may be floodproofed in lieu of elevation provided that all areas of the structure below the required elevation are watertight with walls substantially impermeable to the passage of water, using structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy.

Hardeeville BFE & Freeboard

- Current Hardeeville Requirements
  - Zone AE Lowest Floor = BFE + 2’
    - Residential New Construction
    - Nonresidential Construction
  - Zone A (No BFE) = Lowest Floor 3’ above highest adjacent grade
  - Critical Facilities Lowest Floor = BFE + 3’
  - HVAC/Mechanical Equipment = Lowest Elevation = BFE

Hardeeville BFE & Freeboard

- Neighboring Jurisdictions – Single Family Residential
  - Beaufort County: BFE
  - Town of Bluffton: BFE + 1’ or 1’ above CL road elevation, the higher
  - Port Royal: BFE
  - City of Beaufort: BFE
  - Hampton County: BFE + 3’
  - Colleton County: BFE + 1’
  - Hilton Head Island: ASCE 24, per IBC
  - City of Savannah: BFE + 1’ or 1’ above study elevations (localized)
  - Chatham County: BFE + 1’
  - Jasper County: BFE + 2’

Hardeeville BFE & Freeboard

- The effect of local building codes:
  - SC State International Building codes apply.
    - Hardeeville Ordinance - Chapter 6. Article II. Sec.6-101.1
  - International Building Code 2015 references ASCE-24-14.

IBC/ASCE 24. The IBC, by reference to ASCE 24, specifies the minimum elevations to which buildings must be elevated or floodproofed. Every building designed under the IBC must be assigned an Occupancy Category, which is a way to recognize the importance of buildings in terms of protection of occupants as well as protection of function. ASCE 24 uses Occupancy Category to establish minimum elevations for buildings in flood hazard areas. Tables in several sections (summarized on the next page) specify minimum elevations for lowest floors (in Zone A and Zone V), floodproofing, flood damage-resistant materials, utilities, and equipment. All buildings are required to be 1 or 2 ft higher than the BFE/DFE, except agricultural facilities, temporary facilities, and minor storage facilities. Importantly, homes that are within the scope of the IBC and homes in floodways are required to be at least 1 ft higher than the BFE.

Hardeeville BFE & Freeboard

- ASCE 24-14

HIGHLIGHTS OF ASCE 24-14 *Flood Resistant Design and Construction*

Published by the American Society of Civil Engineers (ASCE), *Flood Resistant Design and Construction*, ASCE 24, is a referenced standard in the *International Codes*® (I-Codes®). ASCE 24 states the minimum requirements and expected performance for the siting and design and construction of buildings and structures in flood hazard areas that are subject to building code requirements. Types of buildings and structures are described in ASCE 24-14, Table 1-1 (see page 5 of these Highlights), and include commercial, residential, industrial, educational, healthcare, critical facilities, and other occupancy types. Buildings and structures designed according to ASCE 24 are better able to resist flood loads and flood damage.

FEMA deems ASCE 24 to meet or exceed the minimum National Flood Insurance Program (NFIP) requirements for buildings and structures. ASCE 24 includes additional specificity, some additional requirements, and some limitations that are not in NFIP regulations.

Buildings and structures within the scope of the IBC and proposed to be located in any flood hazard area must be designed in accordance with ASCE 24. The 2015 I-Codes reference ASCE 24-14, while the 2006 through 2012 I-Codes reference ASCE 24-05. The *International Residential Code*® requires dwellings in floodways to be designed in accordance with ASCE 24, and the 2015 edition of the IRC allows use of ASCE 24 for dwellings in any flood hazard area (the 2012 and 2009 editions allow use of ASCE 24 in Coastal High Hazard Areas).

Highlights of ASCE 24-14 that complement the NFIP minimum requirements are described below.

A summary of significant technical revisions from ASCE 24-05 to ASCE 24-14 is reproduced on page 6 of these Highlights.

Building Performance

Hardeeville BFE & Freeboard

- ASCE 24-14

Buildings and structures within the scope of the IBC and proposed to be located in any flood hazard area must be designed in accordance with ASCE 24. The 2015 I-Codes reference ASCE 24-14, while the 2006 through 2012 I-Codes reference ASCE 24-05. The *International Residential Code*® requires dwellings in floodways to be designed in accordance with ASCE 24, and the 2015 edition of the IRC allows use of ASCE 24 for dwellings in any flood hazard area (the 2012 and 2009 editions allow use of ASCE 24 in Coastal High Hazard Areas).

Hardeeville BFE & Freeboard

See next page for description of Flood Design Classes →		Flood Design Class 1	Flood Design Class 2	Flood Design Class 3	Flood Design Class 4
Minimum Elevation* of Lowest Floor (Zone A: ASCE 24-14 Table 2-1)	Zone A not identified as Coastal A Zone	DFE	BFE +1 ft or DFE, whichever is higher	BFE +1 ft or DFE, whichever is higher	BFE +2 ft or DFE, or 500-year flood elevation, whichever is higher
Minimum Elevation of Bottom of Lowest Horizontal Structural Member (Zone V: ASCE 24-14 Table 4-1)	Coastal High Hazard Areas (Zone V) and Coastal A Zone	DFE	BFE +1 ft or DFE, whichever is higher	BFE +2 ft or DFE, whichever is higher	BFE +2 ft or DFE, or 500-year flood elevation, whichever is higher
Minimum Elevation Below Which Flood-Damage-Resistant Materials Shall be Used (Table ASCE 24-14 5-1)	Zone A not identified as Coastal A Zone	DFE	BFE +1 ft or DFE, whichever is higher	BFE +1 ft or DFE, whichever is higher	BFE +2 ft or DFE, or 500-year flood elevation, whichever is higher
	Coastal High Hazard Areas (Zone V) and Coastal A Zone	DFE	BFE +1 ft or DFE, whichever is higher	BFE +2 ft or DFE, whichever is higher	BFE +2 ft or DFE, or 500-year flood elevation, whichever is higher
Minimum Elevation of Utilities and Equipment (ASCE 24-14 Table 7-1)**	Zone A not identified as Coastal A Zone	DFE	BFE +1 ft or DFE, whichever is higher	BFE +1 ft or DFE, whichever is higher	BFE +2 ft or DFE, or 500-year flood elevation, whichever is higher
	Coastal High Hazard Areas (Zone V) and Coastal A Zone	DFE	BFE +1 ft or DFE, whichever is higher	BFE +2 ft or DFE, whichever is higher	BFE +2 ft or DFE, or 500-year flood elevation, whichever is higher
Minimum Elevation of Dry Floodproofing of non-residential structures and non-residential portions of mixed-use buildings (ASCE 24-14 Table 6-1)	Zone A not identified as Coastal A Zone	BFE +1 ft or DFE, whichever is higher	BFE +1 ft or DFE, whichever is higher	BFE +1 ft or DFE, whichever is higher	BFE +2 ft or DFE, or 500-year flood elevation, whichever is higher
	Coastal High Hazard Areas (Zone V) and Coastal A Zone	Not permitted	Not permitted	Not permitted	Not permitted
Minimum Elevation of Wet Floodproofing* (ASCE 24-14 Table 6-1)**	Zone A not identified as Coastal A Zone; Coastal A Zone; Coastal High Hazard Areas (Zone V)	BFE +1 ft or DFE, whichever is higher	BFE +1 ft or DFE, whichever is higher	BFE +1 ft or DFE, whichever is higher	BFE +2 ft or DFE, or 500-year flood elevation, whichever is higher

* Flood Design Class 1 structures shall be allowed below the minimum elevation if the structure meets the wet floodproofing requirements of ASCE 24-14 Section 6.3.
** Unless otherwise permitted by ASCE 24-14 Chapter 7
*** Only if permitted by ASCE 24-14 Section 6.3.1

ASCE 24-14 Table 1-1 Flood Design Class of Buildings and Structures	
Use or Occupancy of Buildings and Structures	**Flood Design Class**
Buildings and structures that normally are unoccupied and pose minimal risk to the public or minimal disruption to the community should they be damaged or fail due to flooding. Flood Design Class 1 includes (1) temporary structures that are in place for less than 180 days, (2) accessory storage buildings and minor storage facilities (does not include commercial storage facilities), (3) small structures used for parking of vehicles, and (4) certain agricultural structures. [Note (a)]	1
Buildings and structures that pose a moderate risk to the public or moderate disruption to the community should they be damaged or fail due to flooding, except those listed as Flood Design Classes 1, 3, and 4. Flood Design Class 2 includes the vast majority of buildings and structures that are not specifically assigned another Flood Design Class, including most residential, commercial, and industrial buildings.	2
Buildings and structures that pose a high risk to the public or significant disruption to the community should they be damaged, be unable to perform their intended functions after flooding, or fail due to flooding. Flood Design Class 3 includes (1) buildings and structures in which a large number of persons may assemble in one place, such as theaters, lecture halls, concert halls, and religious institutions with large areas used for worship; (2) museums; (3) community centers and other recreational facilities; (4) athletic facilities with seating for spectators; (5) elementary schools, secondary schools, and buildings with college or adult education classrooms; (6) jails, correctional facilities, and detention facilities; (7) healthcare facilities not having surgery or emergency treatment capabilities; (8) care facilities where residents have limited mobility or ability, including nursing homes but not including care facilities for five or fewer persons; (9) preschool and child care facilities not located in one- and two-family dwellings; (10) buildings and structures associated with power generating stations, water and sewage treatment plants, telecommunication facilities, and other utilities which, if their operations were interrupted by a flood, would cause significant disruption in day-to-day life or significant economic losses in a community; and (11) buildings and other structures not included in Flood Design Class 4 (including but not limited to facilities that manufacture, process, handle, store, use, or dispose of such substances as hazardous fuels, hazardous chemicals, hazardous waste, or explosives) containing toxic or explosive substances where the quantity of the material exceeds a threshold quantity established by the authority having jurisdiction and is sufficient to pose a threat to the public if released. [Note (b)]	3
Buildings and structures that contain essential facilities and services necessary for emergency response and recovery, or that pose a substantial risk to the community at large in the event of failure, disruption of function, or damage by flooding. Flood Design Class 4 includes (1) hospitals and health care facilities having surgery or emergency treatment facilities; (2) fire, rescue, ambulance, and police stations and emergency vehicle garages; (3) designated emergency shelters; (4) designated emergency preparedness, communication, and operation centers and other facilities required for emergency response; (5) power generating stations and other public utility facilities required in emergencies; (6) critical aviation facilities such as control towers, air traffic control centers, and hangars for aircraft used in emergency response; (7) ancillary structures such as communication towers, electrical substations, fuel or water storage tanks, or other structures necessary to allow continued functioning of a Flood Design Class 4 facility during and after an emergency; and (8) buildings and other structures (including, but not limited to, facilities that manufacture, process, handle, store, use, or dispose of such substances as hazardous fuels, hazardous chemicals, or hazardous waste) containing sufficient quantities of highly toxic substances where the quantity of the material exceeds a threshold quantity established by the authority having jurisdiction and is sufficient to pose a threat to the public if released. [Note (b)]	4

[Note (a)] Certain agricultural structures may be exempt from some of the provisions of this standard; see ASCE 24-14 Section C1.4.3.
[Note (b)] Buildings and other structures containing toxic, highly toxic, or explosive substances shall be eligible for assignment to a lower Flood Design Class if it can be demonstrated to the satisfaction of the authority having jurisdiction by a hazard assessment as described in ASCE 7-10 Section 1.5.3 of *Minimum Design Loads for Buildings and Other Structures* that a release of the substances is commensurate with the risk associated with that Flood Design Class.

Flood Insurance & Freeboard - Unofficially

- Single Family, 2 story house, no basement, Post-FIRM structure, Zone AE
- Building Coverage $150,000; $50,000 contents;
- $1,500/$1,500 Deductible, approximations only
  - Lowest Floor at BFE ~ $1,159.00
  - Lowest Floor 1’ + BFE ~ $590.00 (~49% Reduction)
  - Lowest Floor 2’ + BFE ~ $410.00 (~65% Reduction)
  - Lowest Floor 3’ + BFE ~ $347.00 (~70% Reduction)
  - Lowest Floor 4’ + BFE ~ $329.00 (~72% Reduction)

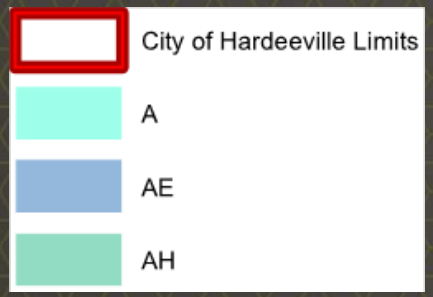
*Figures are approximated and do not include applicable ICC compliance costs, CRS premium discounts, reserve fund fees, HFIAA Surcharge & Federal Policy Fee. Contact a qualified insurance agent for actual quote. Percent reductions are compared to lowest floor at BFE.

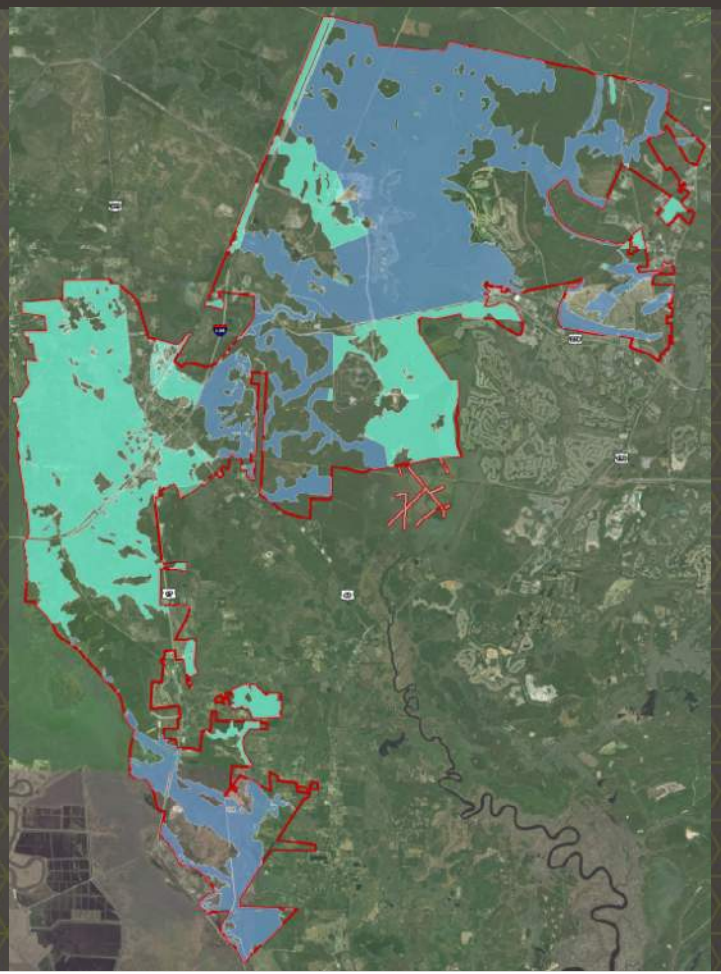
Preliminary Map Effects on Hardeeville

- Effective FIRM with LOMRs Included
- 857 Parcels in Floodplain

Preliminary Map Effects on Hardeeville

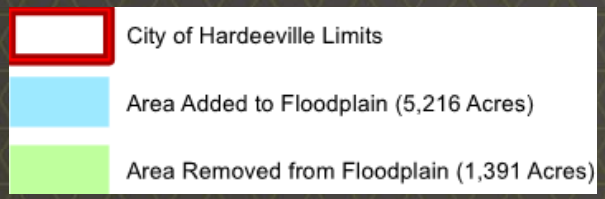
- Preliminary Maps
- 1,180 Parcels in Floodplain

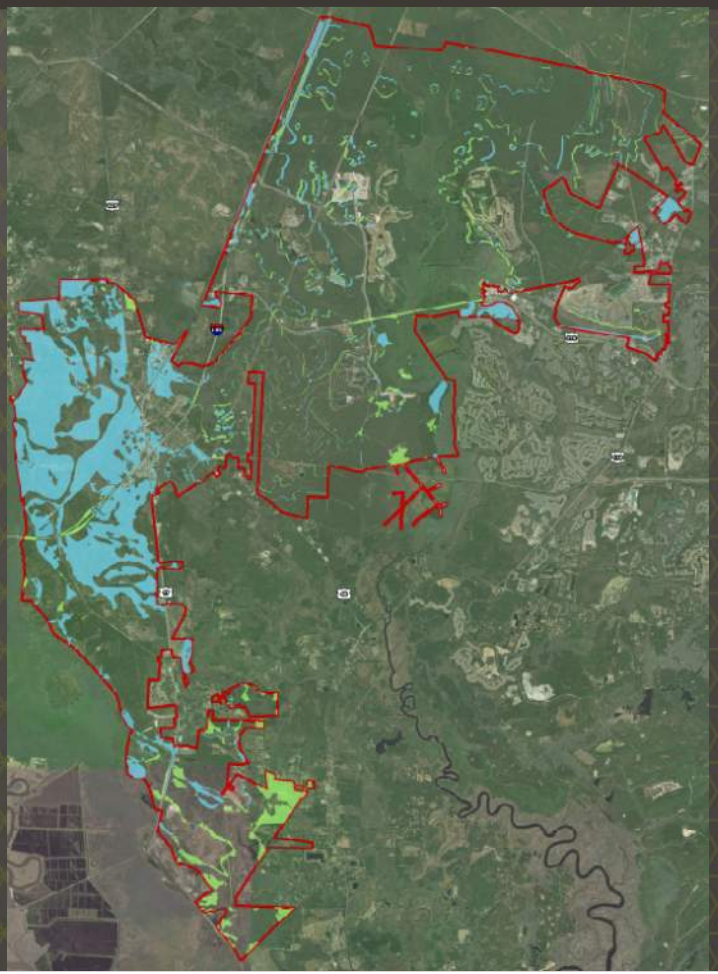




Preliminary Map Effects on Hardeeville

- Preliminary vs. Effective
- 323 Parcels Added to Floodplain
- 3,825 Acres Added to Floodplain





Proactive Measures

- Appeals Period
  - Minto LOMR for Latitude
  - Others?
- Additional Detailed Studies/LOMRs
  - Consider for areas prime for development
- Community Rating System
  - Voluntary program
  - Provides flood assistance for enhanced mapping, regulations, etc.
  - Class Rating from 10 to 1 based on credit points
  - 5% insurance reduction for every point gained.
  - Maximum insurance premium reduction of 45%

Table 110-1. CRS classes, credit points, and premium discounts.

CRS Class	Credit Points (cT)	Premium Reduction	
		In SFHA	Outside SFHA
1	4,500+	45%	10%
2	4,000–4,499	40%	10%
3	3,500–3,999	35%	10%
4	3,000–3,499	30%	10%
5	2,500–2,999	25%	10%
6	2,000–2,499	20%	10%
7	1,500–1,999	15%	5%
8	1,000–1,499	10%	5%
9	500–999	5%	5%
10	0–499	0	0

SFHA: Zones A, AE, A1–A30, V, V1–V30, AO, and AH

Outside the SFHA: Zones X, B, C, A99, AR, and D

Preferred Risk Policies are not eligible for CRS premium discounts because they already have premiums lower than other policies. Preferred Risk Policies are available only in B, C, and X Zones for properties that are shown to have a minimal risk of flood damage.

Some minus-rated policies may not be eligible for CRS premium discounts.

Premium discounts are subject to change.

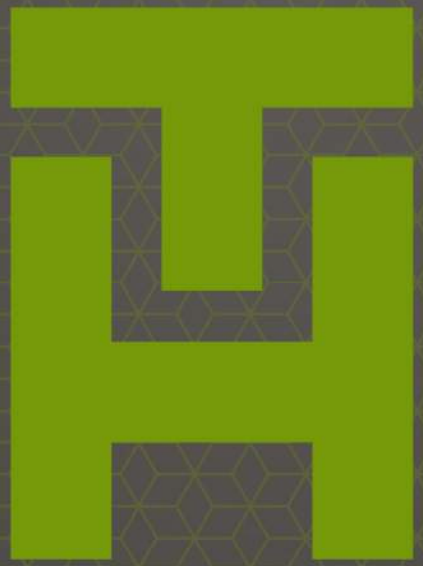
How does Hardeeville Proceed?

- Elevation of Utilities
  - Consistent with lowest floor required elevation?
- Lowest Floor of Structures
  - Leave as is; BFE +2'?
  - ASCE-24-14 in accordance with IBC 2015? Lowest Floor Based on occupancy.

Questions/Discussion

Useful Websites

- FEMA Map Service Center – General Information
  - https://msc.fema.gov/portal/
- Effective Maps/FIS, Preliminary Maps/FI, Historical Maps/FIS
  - https://msc.fema.gov/portal/advanceSearch
- South Carolina DNR – Flood Mitigation Program
  - http://www.dnr.sc.gov/flood/



THOMAS
&
HUTTON

thomasandhutton.com